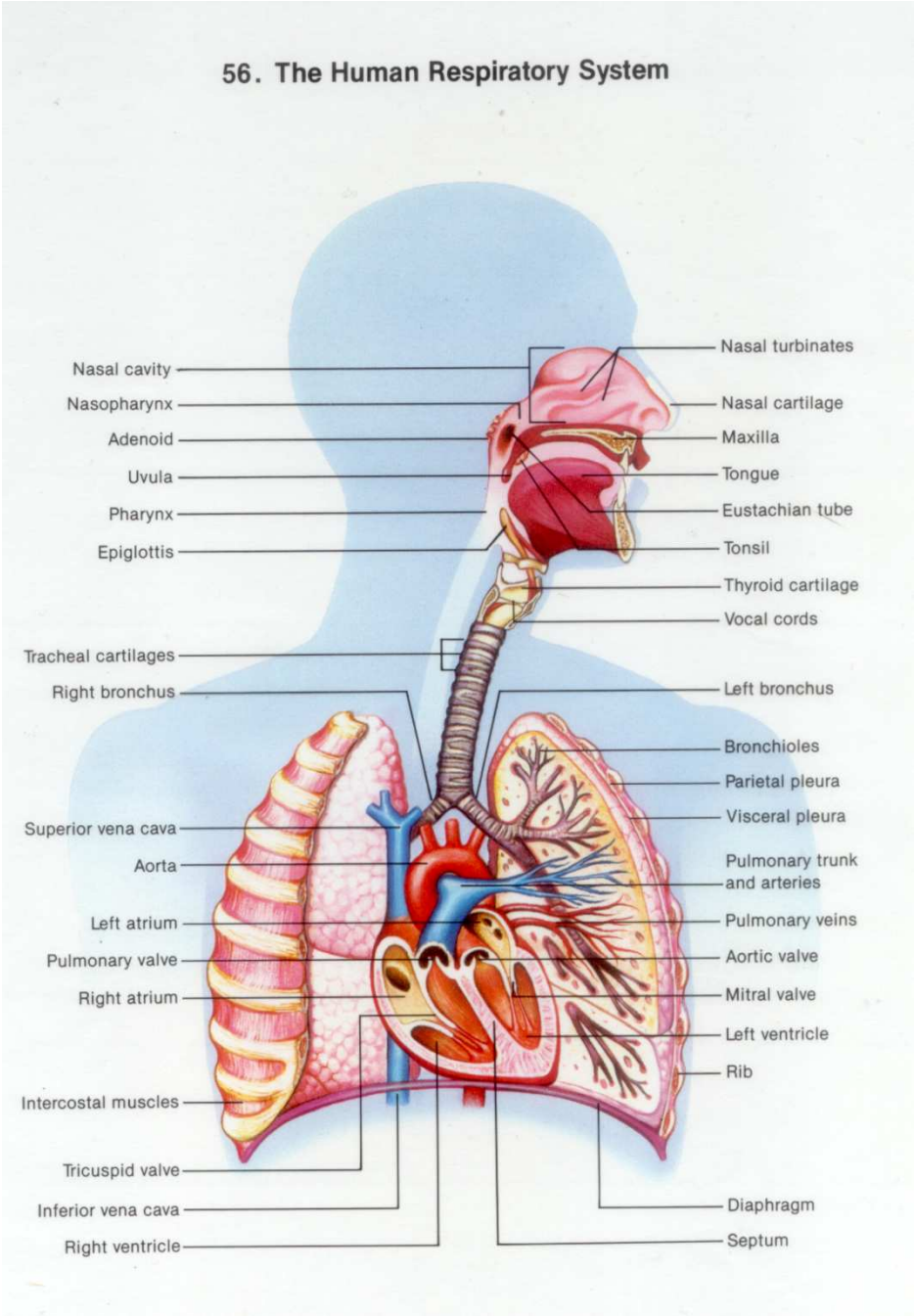
Chapter 20

Respiratory System

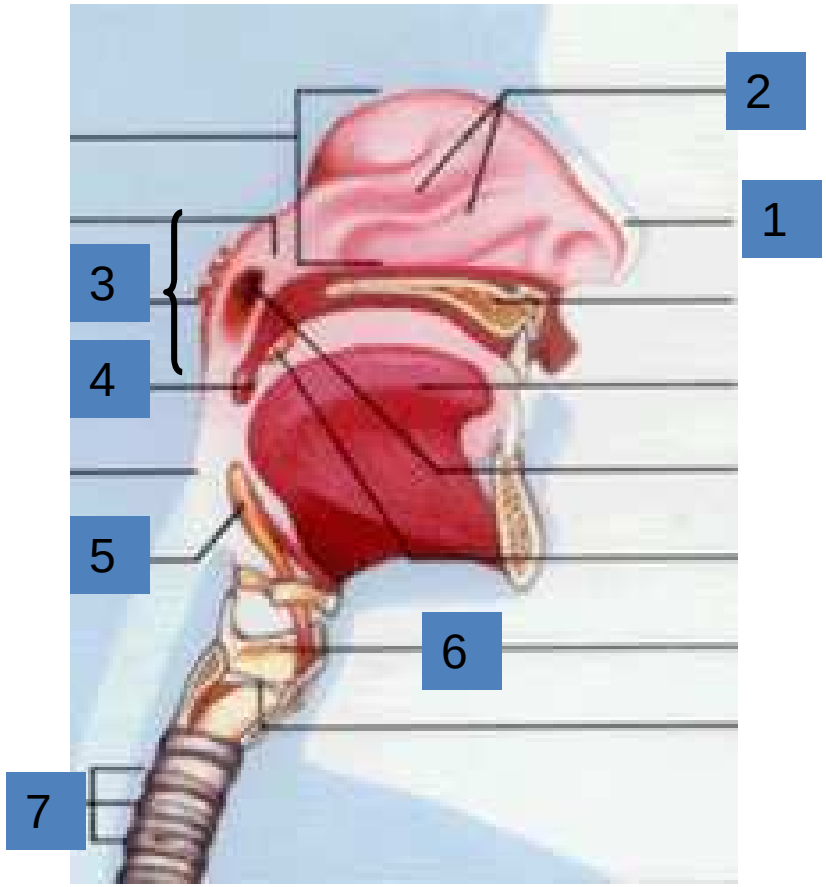
Respiratory System - Function

- To provide a constant supply of Oxygen and the removal of Carbon Dioxide.
- Also aids in waste removal and regulation of body temperature



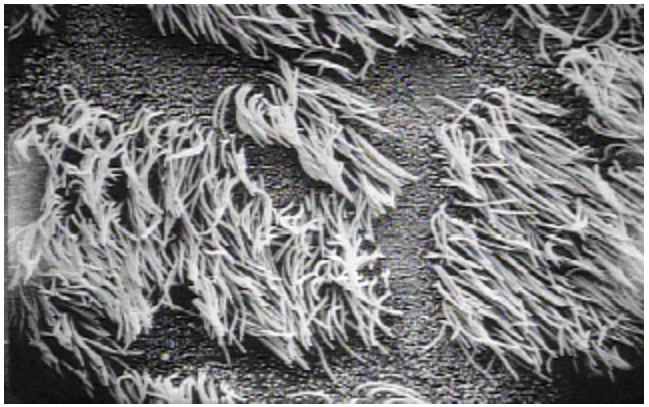
Upper Respiratory System

- Inspired Air rich in Oxygen enters through the (1) nostrils
- Goes through the nasal cavity which has many bumps & ridges called (2) turbinates that disrupt the air flow, slowing it down allowing it to be cleaned, warmed & humidified before going into the lungs.
- Passes thru the (3) Pharynx,
- Going by the (4) Uvula
- Past the (5) epiglottis
- Into the glottis
- Thru the (6) Larynx (voice box)
- And into the (7)Trachea

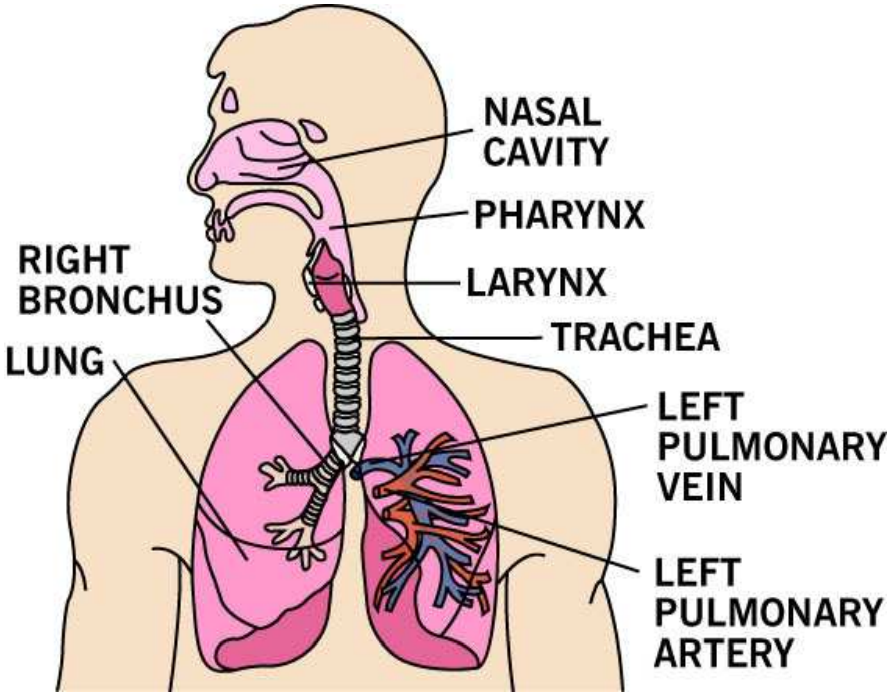


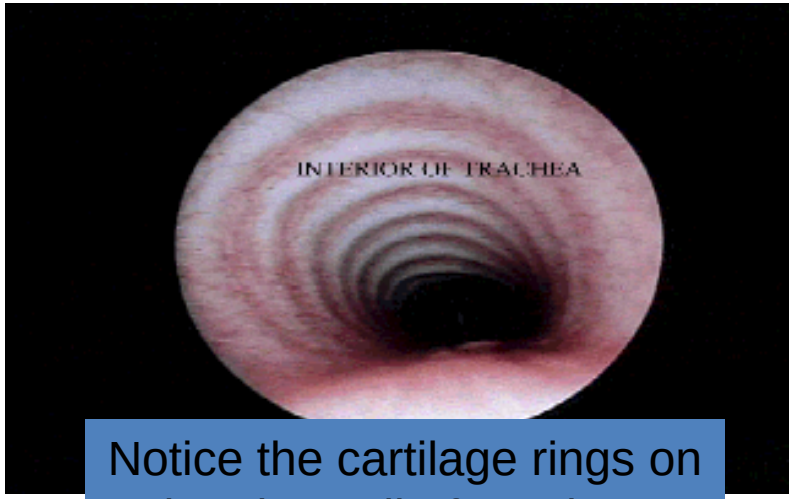
Lower Respiratory System -Trachea

- Trachea –
  - 12” rigid tube
  - held open by cartilaginous rings
  - Inner lining w/ ciliated epithelium cells
  - Branches into 2 Bronchi



Cilia on interior wall of Trachea

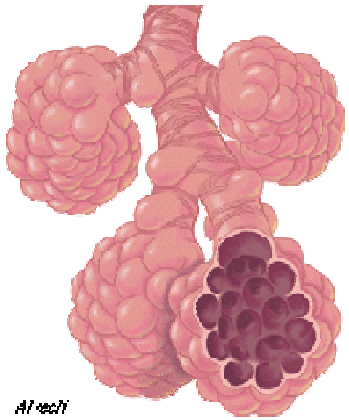


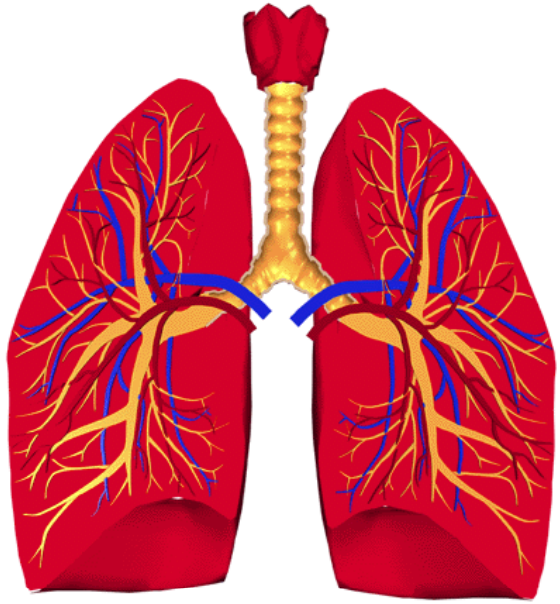


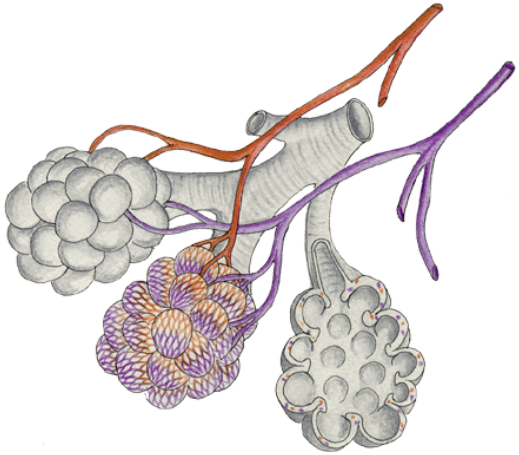
Notice the cartilage rings on interior wall of Trachea

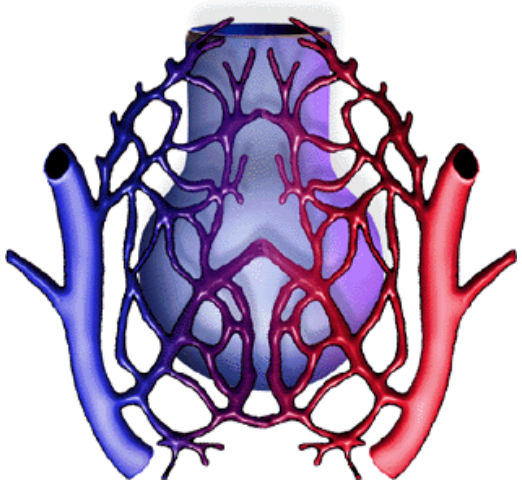
Lower Respiratory System –Lung Anatomy

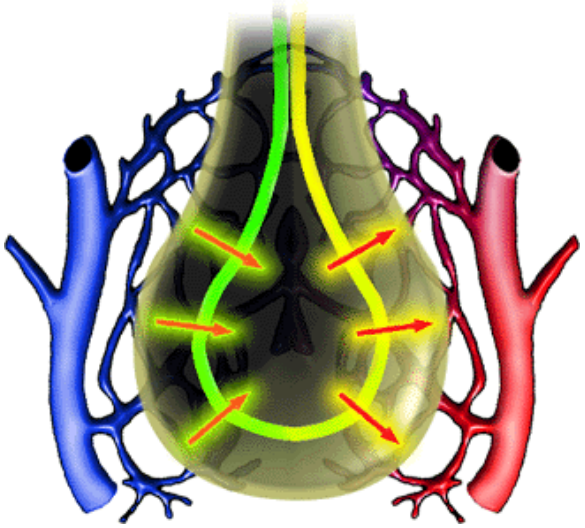
- Bronchi continue to branch into smaller & smaller Bronchioli
- At tips of smallest bronchioli are “grape cluster” structures called Alveoli
- Each lung contains > 300 million of these microscopic alveoli

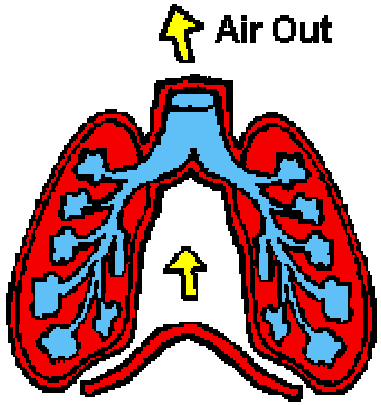




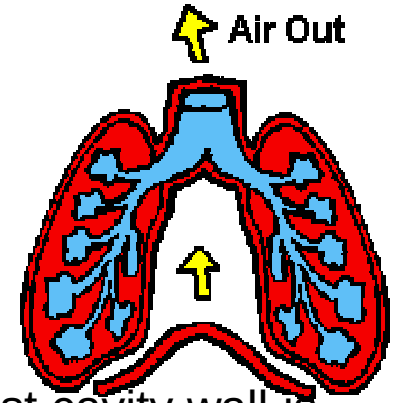








The Act of Breathing

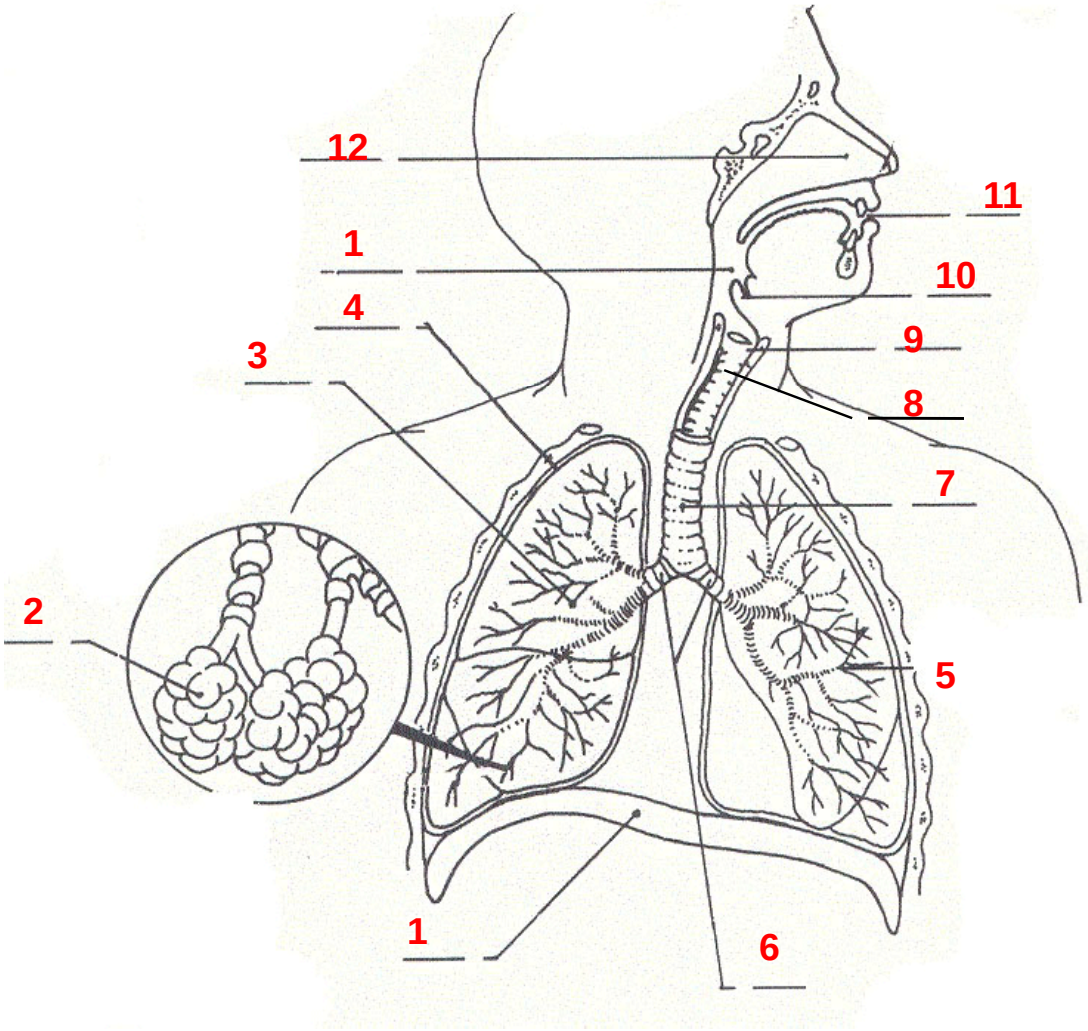


- Inhale – Active Phase
  - Intercostal (chest) muscles contract & expand the chest wall and the diaphragm contracts
  - This causing larger volume in the lungs & lower pressure than atmospheric pressure and air rushes into the lungs
  - O_2 absorbed & CO_2 released
- Exhale – Passive Phase
  - both chest and diaphragm relaxes causing air in the lungs to be pushed out.

- Pleural Membrane
  - Each lung and chest cavity wall is surrounded by a thin moist **Pleural** membrane.
  - This sticky membrane acts like "glue" holding the lungs against the inner chest wall
  - Prevents lung from collapsing
- Lung diseases/conditions
  - Pneumonia – lung infection by bacteria, virus, fungi or foreign particles
  - Bronchitis- Inflammation of the bronchi
  - Asthma – Bronchial spasms
  - Emphysema – smoking causes alveoli to be like paper sacks instead of balloons, unable to expand and exchange air efficiently.

“Need-to-Knows”

1. Diaphragm
2. Alveoli
3. Lung
4. Pleura
5. Bronchioli
6. Bronchi
7. Trachea
8. Larynx
9. Glottis
10. Epiglottis
11. Mouth
12. Nasal cavity



All Done!!

That was Easy!!